

### **ABSTRACT**

A system and method for measuring contact pressures between two surfaces, and especially, between the body and a device resting on the body, e.g., the skin and a breathable gas mask. A deformable, resilient probe having a flow passage therein is initially placed between the two surfaces such that the flow passage is blocked. Fluid pressure within the probe is then increased until the pressure in the probe overcomes the contact pressure between the two surfaces, such that fluid begins to flow through the flow passage in the probe. The pressure at which the fluid begins to flow through the flow passage in the probe is recorded as the contact pressure between the two surfaces. Contact pressure maps created using this apparatus and method may be used to create anthropometric models of the face and other body parts.